

Claims

1. A method for selective retransmission within a communication system wherein higher-layer packets are segmented and transmitted via a link-layer protocol, the method comprising the steps of:
 - determining that a link-layer frame needs to be aborted;
 - determining a set of link-layer frames ($\underline{V}(B)$) having higher-layer packet boundaries; and
 - selectively retransmitting link-layer frames by setting $V(N)$ to a next missing link-layer frame after a higher-layer packet boundary if $\underline{V}(B)$ is not an empty set, otherwise setting $V(N)$ to $V(R)$, wherein $V(N)$ is a next link-layer frame needed for sequential delivery of frames and $V(R)$ is a next new link-layer frame expected.
2. The method of claim 1 wherein the step of determining that the link-layer frame needs to be aborted comprises the step of determining that an Radio Link Protocol (RLP) frame needs to be aborted, wherein the RLP frame comprises a segment from a higher-layer Point-to-Point Protocol (PPP) packet.
3. The method of claim 1 wherein the step of determining that the link-layer frame needs to be aborted comprises the step of determining that a Radio-Link Protocol (RLP) frame needs to be aborted.
4. The method of claim 1 wherein the step of determining a set of link-layer frames having higher-layer packet boundaries comprises the step of determining a set of link-layer frames having Point-to-Point Protocol (PPP) packet boundaries.

5. In a communication system where a higher-layer packet is segmented and transmitted over a link layer utilizing a link-layer protocol, a method for selective retransmission of data, the method comprising the steps of:

- 5 receiving a link-layer frame, wherein the link-layer frame comprises data from a first higher-layer packet; and
- failing to send a Negative acknowledgment (NAK) for the link-layer frame if a prior-received link-layer frame was aborted, otherwise sending the NAK.

6. The method of claim 5 wherein the step of receiving the link-layer frame
10 comprises the step of receiving a Radio-Link Protocol (RLP) frame comprising data from a first Point-to-Point Protocol (PPP) packet.

7. The method of claim 5 wherein the step of failing to send the NAK for the link-layer frame if a prior-received link-layer frame was aborted, otherwise
15 sending the NAK comprises the step of failing to send the NAK for the link-layer frame if a prior-received link-layer frame was aborted and the aborted frame comprises data from the first higher-layer packet, otherwise sending the NAK.

8. An apparatus comprising:
receiving circuitry having a link-layer frame as an input, the link-layer frame comprising data from a first higher-layer packet; and
transmitting circuitry failing to output a Negative Acknowledgment (NAK) for the link-layer frame if a prior-received link-layer frame was aborted, otherwise sending the NAK.
9. The apparatus of claim 8 wherein the link-layer frame is a Radio-Link Protocol (RLP) frame.
10. The apparatus of claim 8 wherein the first higher-layer packet is a first Point-to-Point Protocol (PPP) packet.
11. The apparatus of claim 10 wherein the first PPP packet is fragmented into multiple RLP frames.
12. The apparatus of claim 8 wherein the transmitting circuitry fails to output the NAK for the link-layer frame if a prior-received link-layer frame was aborted and the prior-received link-layer frame comprises data from the first higher-layer packet, otherwise the transmitting circuitry outputs the NAK.

13. An apparatus comprising:
- a receiver having a poorly received link-layer frame as an input, wherein the link-layer frame comprises a segment of a higher-layer data packet; and
- logic circuitry determining that the poorly received link-layer frame should be aborted, and setting V(N) to a next missing link-layer frame after a next higher-layer packet boundary if $\underline{V}(B)$ is not an empty set, otherwise setting V(N) to V(R), wherein V(N) is a next link-layer frame needed for sequential delivery of frames and V(R) is a next new link-layer frame expected.
14. The apparatus of claim 13 wherein the higher-layer data packet comprises a PPP packet.
15. The apparatus of claim 13 wherein the poorly received link-layer packet comprises a poorly-received RLP packet.

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